AMENDMENTS TO THE CLAIMS

Claims 1-4 (Cancelled)

5. (Original) A library comprising two or more probes, each probe distinguishably labeled with at least one carbon nanotube.

6. (Original) The library of claim 5, wherein the probes are oligonucleotides, chemically modified oligonucleotides, oligonucleotide analogs or peptide nucleic acids

7. (Original) The library of claim 5, wherein the probes comprise all possible nucleotide sequences for a probe of defined length.

8. (Original) The library of claim 7, wherein the probe length is selected from the group consisting of 4, 5, 6, 7 and 8 nucleotides.

9. (Original) The library of claim 5, wherein at least one probe is labeled with at least two nanotubes.

10. (Original) The library of claim 5, wherein the probes comprise random nucleotide sequences.

11. (Original) The library of claim 5, wherein the probes comprise at least one constant nucleotide.

12. (Original) The library of claim 5, wherein the probe length is selected from the group consisting of 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15 nucleotides.

13. (Original) The library of claim 5, wherein the probe length is greater than 15 nucleotides.

Claims 14-23 (Cancelled)

24. (New) The composition of claim 5, further comprising at least 256 probes distinguishably labeled with nanotubes.

25. (New) The composition of claim LAST, wherein the nanotubes of the 256 probes have distinguishable emission spectra.

26. (New) The composition of claim 5, further comprising at least 1024 probes having distinguishable emission spectra.

27. (New and Withdrawn) A method comprising:
hybridizing the probes of the library of claim 5 with a nucleic acid; and
exciting the nanotubes of the probes.

28. (New and Withdrawn) The method of claim 27, wherein exciting the nanotubes comprises exciting the nanotubes with an electron beam.

29. (New and Withdrawn) The method of claim 27, further comprising detecting emissions from the excited nanotubes.

30. (New and Withdrawn) The method of claim 29, wherein a distinguishable emission spectrum is detected from the nanotubes attached to each probe.

31. (New and Withdrawn) The method of claim 30, further comprising identifying the probes based on the detected emissions.

32. (New and Withdrawn) The method of claim 31, further comprising detecting a sequence of a plurality of probes hybridized to the nucleic acid.

33. (New and Withdrawn) The method of claim 27, further comprising moving the hybridized nucleic acid past a detector, wherein the hybridized probes move past the detector in a linear sequence.

34. (New and Withdrawn) The method of claim 33, wherein the hybridized nucleic acid moves past the detector in a microchannel or microcapillary.

35. (New and Withdrawn) The method of claim 27, further comprising separating unhybridized probes from probes hybridized to the nucleic acid.

36. (New and Withdrawn) A method comprising:
hybridizing the probes of the library of claim 24 with a nucleic acid; and
exciting the nanotubes of the probes.

37. (New and Withdrawn) The method of claim 36, further comprising detecting emissions from the excited nanotubes, wherein a distinguishable emission spectrum is detected from the nanotubes attached to each probe.

38. (New and Withdrawn) The method of claim 37, further comprising identifying the probes based on the detected emissions.

39. (New and Withdrawn) The method of claim 38, further comprising detecting a sequence of a plurality of probes hybridized to the nucleic acid.

40. (New and Withdrawn) The method of claim 36, further comprising moving the hybridized nucleic acid past a detector in a microchannel or microcapillary, wherein the hybridized probes move past the detector in a linear sequence.